AGRICULTURAL CHEMICAL USAGE 1999 POTATOES

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United States Department of Agriculture
National Agricultural Statistics Service

OVERVIEW

The agricultural chemical use estimates in this report refer to on-farm use of commercial fertilizers and pesticides applied to potatoes in the state of Washington for the 1999 crop year. The data were compiled from NASS's Agricultural Resources Management Study (ARMS), conducted primarily during the months of October - December 1999.

The data presented is part of an effort by the USDA to build a Pesticide Data Program used to evaluate the safety of the Nation's food supply. The Food Quality Protection Act mandates an accelerated review of all pesticide products before it can be re-registered for use. The implementation of the Act, in 1996, increased the need for reliable chemical data. This and other agricultural chemical use reports help fill the needs of analysts evaluating food safety issues we are faced with today.

National targeted crops in the 1999 ARMS included corn, upland cotton, fall potatoes, soybeans, peanuts, and sunflowers. Winter wheat was a target commodity for Indiana only. The national report includes information on fertilizer and pesticide use on these other selected target crops. Eleven fall potato producing states were included in this survey: Colorado, Idaho, Indiana, Maine, Michigan, Minnesota, North Dakota, Oregon, Pennsylvania, Washington, and Wisconsin.

SURVEY

Producers surveyed were selected from a large sample of operations that were screened for potatoes. These farms were sampled in such a way to insure that each identified producer had an opportunity to be selected.

Once a farm was selected, the operator was interviewed and a sample field was randomly selected. Information for the sample field was collected for fertilizer and pesticide applications. The chemical use estimates in this publication consists of survey estimates of those active ingredients. The chemical application data were collected by product name or trade name through personal interviews with the potato growers operating the sampled fields. Applications made after harvest of the previous year's crop through harvest of the current year's crop were included. Seed treatments and chemicals applied after harvest were excluded. The data were converted to active ingredient levels and summarized.

FALL POTATOES: CHEMICAL APPLICATIONS, TOTAL ACREAGE & PERCENTAGE RECEIVING APPLICATIONS, MAJOR STATES & TOTAL, 1997 & 1999

State	Planted Acreage		Area Receiving Fertilizer 1/						Area Receiving Pesticide 2/					
			Nitrogen		Phosphate		Potash		Herbicide		Insecticide 3/		Fungicide	
	1997	1999	1997	1999	1997	1999	1997	1999	1997	1999	1997	1999	1997	1999
	1,000 Acres		---------Percent---------						---------Percent---------					
CO	-	77.2	-	98	-	95	-	74	-	86	-	76	-	98
ID	390.0	395.0	100	100	97	99	88	82	92	92	92	92	100	92
IN	-	5.2	-	100	-	100	-	100	-	67	-	99	-	29
ME	71.0	65.0	100	100	100	100	100	100	96	100	97	97	99	100
MI	-	48.0	-	100	-	98	-	100	-	100	-	100	-	99
MN	77.0	70.0	96	99	99	91	97	91	28	86	99	91	98	93
ND	125.0	121.0	100	99	96	98	80	83	63	83	77	95	99	99
OR	54.5	56.0	100	100	100	100	87	91	94	100	85	89	93	97
PA	-	14.5	-	97	-	97	-	97	-	94	-	99	-	95
WA	**148.0**	**170.0**	**100**	**100**	**99**	**99**	**98**	**97**	**85**	**98**	**99**	**99**	**95**	**97**
WI	78.0	86.0	100	100	100	100	100	99	98	98	95	100	100	98
Total	**943.5**	**1,107.9**	**100**	**100**	**98**	**98**	**91**	**88**	**83**	**93**	**92**	**93**	**98**	**95**

1/ Refers to acres receiving one or more applications of a specific ingredient. 2/ Refers to acres reported as receiving one or more applications of a specific pesticide class. 3/ Total applied excludes Bt's (Bacillus thuringiensis). Quantities are not available because amounts of active ingredient are not comparable between products. - Not applicable.

Source: "Agricultural and Chemical Usage - 1999 Field Crops Summary": ARMS, National Agricultural Statistics Service, USDA.

TERMS AND DEFINITIONS

Active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example, in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

Agricultural chemicals are the active ingredients in fertilizers and pesticides.

Rate per application refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient applied to an acre of land. Rate per acre is the average number of pounds applied in one application. Rate per crop year is the average number of pounds applied counting multiple applications. Number of applications is the average number of times a treated acre receives a specific agricultural chemical.

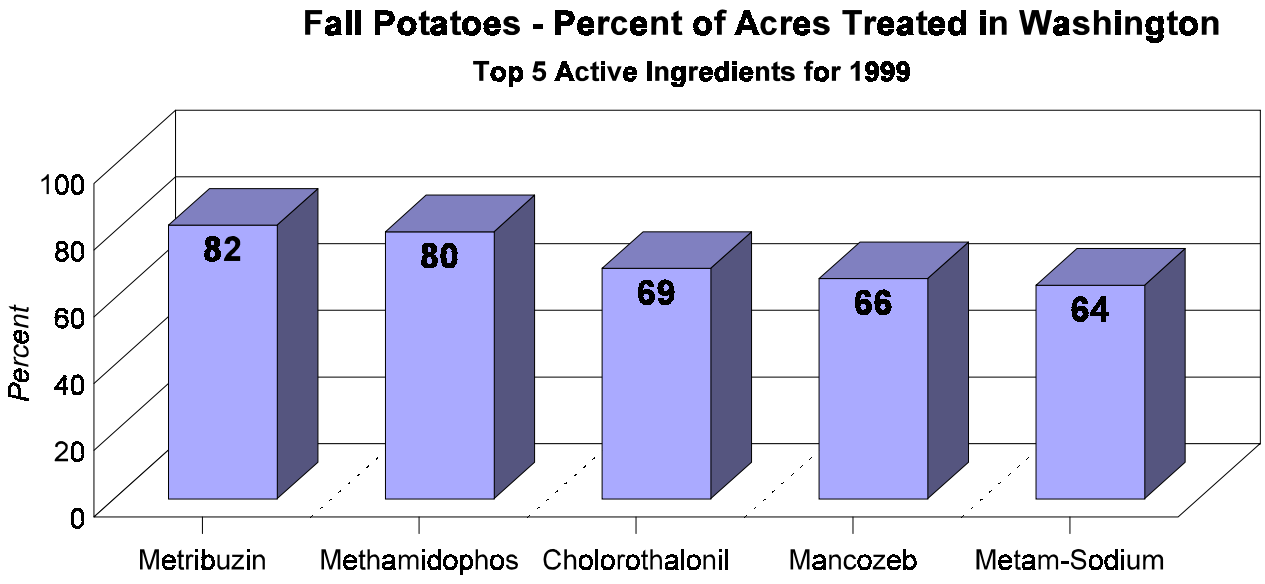
Area applied represents the percentage of crop acres receiving one or more applications of a specific agricultural chemical. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

Common name is an officially recognized name for an active ingredient. This report shows active ingredient by common name.

Fertilizer in this report refers to applications of the primary nutrients: nitrogen, phosphate, and potash.

Pesticides include any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Pests targeted by pesticides include weeds, insects, fungi, and other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals.

Trade name is the trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulations as in the case of pre-mixes, can contain more than one active ingredient.



FALL POTATOES: AGRICULTURAL CHEMICAL APPLICATIONS, WASHINGTON, 1997-99 1/

Agricultural Chemicals 2/	Area Applied 3/		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	1997	1999	1997	1999	1997	1999	1997	1999	1997	1999
	Percent		Number		Pounds Per Acre				Million Pounds	
Fertilizers:										
Nitrogen	100	100	2.5	3.6	131	89	324	327	47.9	55.5
Phosphate	99	99	1.7	1.6	168	142	289	242	42.6	40.7
Potash	98	97	1.2	1.3	180	194	217	264	31.6	43.7
	Percent		Number		Pounds Per Acre				1,000 Pounds	
Herbicides:										
EPTC	48	40	1.0	1.0	2.38	3.29	2.48	3.41	175	231
Metolachlor	-	3	-	1.0	-	1.65	-	1.65	-	8
Metribuzin	66	82	1.1	1.2	0.46	0.37	0.50	0.44	49	61
Pendimethalin	23	26	1.0	1.0	0.66	0.69	0.66	0.69	23	31
Trifluralin	14	27	1.0	1.0	0.47	0.58	0.47	0.58	10	27
Insecticides:										
Aldicarb	28	14	1.0	1.0	2.95	2.94	2.95	3.10	122	76
Azinphos-methyl	-	15	-	1.1	-	0.35	-	0.39	-	10
Carbaryl	-	2	-	1.2	-	1.03	-	1.24	-	3
Carbofuran	39	22	1.1	1.6	1.15	1.07	1.27	1.74	73	65
Dimethoate	22	9	2.3	2.2	0.47	0.47	1.07	1.04	35	17
Esfenvalerate	14	16	1.2	1.0	0.04	0.04	0.05	0.04	1	1
Ethoprop	-	20	-	1.0	-	4.75	-	4.75	-	158
Imidacloprid	-	4	-	1.0	-	0.14	-	0.14	-	1
Methamidophos	78	80	1.6	1.7	0.83	0.96	1.34	1.73	155	236
Permethrin	7	7	1.2	1.2	0.09	0.12	0.12	0.16	1	2
Phorate	14	31	1.0	1.0	2.87	2.88	2.87	2.89	61	154
Propargite	26	19	1.0	1.1	1.75	1.62	1.82	1.89	69	60
Fungicides:										
Azoxystrobin	-	20	-	2.3	-	0.11	-	0.27	-	9
Chlorothalonil	89	69	2.4	2.5	1.04	1.06	2.47	2.76	325	322
Copper ammonium	-	10	-	2.2	-	0.36	-	0.79	-	14
Copper hydroxide	18	19	1.3	1.3	0.58	0.54	0.76	0.75	21	24
Cymoxanil	7	9	1.0	1.8	0.12	0.13	0.12	0.23	1	4
Iprodione	37	32	1.0	1.1	0.96	0.96	0.96	1.08	52	59
Mancozeb	36	66	2.3	2.2	1.26	1.34	2.93	3.02	158	337
Maneb	18	-	3.9	-	0.85	-	3.30	-	89	-
Mefenoxam	-	19	-	1.2	-	0.10	-	0.12	-	4
Metalaxyl	29	14	1.7	1.5	0.21	0.19	0.35	0.30	15	7
Metiram	38	37	2.1	2.4	1.55	1.61	3.31	4.01	187	251
Sulfur	15	-	2.5	-	3.31	-	8.23	-	189	-
Triphenyltin hydrox.	24	7	3.3	1.2	0.12	0.10	0.40	0.13	14	2
Other Chemicals:										
Dichloropropene	10	22	1.0	1.0	167.36	163.61	167.36	165.79	2,516	6,335
Diquat	30	35	1.0	1.1	0.29	0.41	0.30	0.47	13	28
Metam-sodium	40	64	1.0	1.0	110.19	118.43	110.19	119.63	6,597	12,916
Paraquat	8	-	1.1	-	0.41	-	0.47	-	6	-

1/ Area planted; 1997 was 148,000 acres, 1999 was 170,000 acres.

2/ Insufficient reports in 1997 to publish data for the following chemicals: Herbicides: Glyphosate, Metolachlor, Rimsulfuron. Insecticides: Azinphos-methyl, Carbaryl, Diazinon, Ethoprop, Fonofos, Imidacloprid, Phosmet, Pyrethrins, Rotenone. Fungicides: Captan, Copper ammonium, Dicloran, Dimethomorph, Propamocarb hydroch. Other Chemicals: Chloropicrin, Endothall, Maleic hydrazide, Monocarbamide dihyd. Insufficient reports in 1999 to publish data for the following chemicals: Herbicides: Glyphosate, Rimsulfuron, Sethoxydim. Insecticides: Diazinon, Endosulfan, Lambda-cyhalothrin, Malathion, Methomyl, Methoxychlor, Methyl parathion, Mevinphos, oxamyl, Phosmet, Spinosad. Fungicides: Copper resinate, Dicloran, Maneb, Propamocarb hydroch., Sulfur. Other Chemicals: Chloropicrin, Cytokinins, Endothall, Maleic hydrazide, Monocarbamide dihyd., Paraquat, Sodium chlorate.

3/ Refers to acres receiving one or more applications of a specific agricultural chemical.

- Insufficient reports to publish state level usage estimates.

Note: Data may not multiply across due to rounding.

Source: "Agricultural and Chemical Usage - 1999 Field Crops Summary": ARMS, National Agricultural Statistics Service, USDA.

TRADE NAMES, COMMON NAMES, AND CLASSES

The following is a list of common name, associated class, and trade name of active ingredients in this publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Premixes are not cataloged. The list is not complete for all pesticides used on field crops and NASS does not mean to imply use of any specific trade name.

Class	Common Name	Trade Name
I	aldicarb	Temik
I	azinphos-methyl	Guthion
F	azoxystrobin	Abound, Quadris
I,O	carbaryl	Savit, Sevin
I	carbofuran	Furadan
F	chlorothalonil	Bravo, Daconil
F	copper ammonium	Copper-Count-N
F	copper hydroxide	several
F	cymoxanil	Curzate
O	dichloropropene	Telone
I	dimethoate	several
H,O	diquat	Diquat
H	EPTC	Eptam, Eradicane, Genep
I	esfenvalerate	Asana
I	ethoprop	Holdem, Mocap
I	imidacloprid	Admire
F	iprodione	Rovral
F	mancozeb	several
F	maneb	several
F	mefenoxam	Ridomil Gold
F	metalaxyl	Ridomil
O	metam-sodium	Vapam
I	methamidophos	Monitor
F	metiram	Polyram
H	metolachor	Dual
H	metribuzin	Axiom, Lexone, Sencor
H,O	paraquat	Cyclone, Gramoxone, Starfire
H	pendimethalin	Prowl
I	permethrin	Ambush, Pounce
I	phorate	Thimet
I	propargite	Comite, Omite
I,F	sulfur	several
H	trifluralin	Treflan, Trific, Trilin
F	triphenyltin hydroxide	several

Fall Potatoes: Number of Usable Reports, 1999